

## CLAIMS

1. A computer system comprising:

a central processing unit;

5 resources accessed by said central processing unit running a program under its control;

storage means storing a main operating system program, application programs and a sub-operating system program,

10 the main operating system program being executed by said central processing unit to provide a main task execution function that generates a plurality of main tasks and causes said central processing unit to sequentially run the plurality  
15 of main tasks,

the main operating system program also providing an exclusive control function effecting, when there is a request from the main task for acquisition of any of said resources, exclusive  
20 control on the use of said resources, by allocating said resources to the main tasks in the order of requests,

the sub-operating system program being executed as one of the main tasks under the control  
25 of the main operating system program to provide a sub-task executing function that generates a plurality of sub-tasks based on said application programs and causes said central processing unit to sequentially run the plurality of sub-tasks,

30 wherein

the sub-operating system program provides a resource acquisition management function for checking, when there is a request for acquisition of any of the resources from the sub-task, whether  
5 the requested resource is released by the exclusive control function and, when it is determined that the resource is released, outputs a request for acquisition of the requested resource to the exclusive control function, and wherein the sub-  
10 task executing function sequentially executes sub-tasks other than the requesting sub-task.

2. The computer system according to claim 1, wherein said sub-task executing function resumes  
15 the execution of the requesting sub-task at predetermined intervals.

3. The computer system according to claim 1, wherein one of the main operating system program  
20 and the sub-operating system program provides a release notification function notifying the sub-task executing function that the requested resource is released so that the sub-task executing function resumes the execution of the requesting sub-task in  
25 response to the notification.

4. The computer system according to claim 3, wherein

the sub-operating system program provides a  
30 table generating function that generates a sub-

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resource table showing acquisition and release status of virtual resources used by the application programs,

the sub-task executing function halts the sub-task that failed to acquire the resource by causing the sub-task to wait for the virtual resource listed in the sub-resource table becoming available, and resumes the execution of the sub-task upon detecting that the virtual resource is released, and

the release notification function notifies the sub-task executing function that the requested resource is released by the exclusive control function, by releasing the virtual resource.

5. The computer system according to claim 3, wherein the release notification function is periodically executed under the control of the sub-operating system program.

6. The computer system according to claim 4, wherein the release notification function is periodically executed under the control of the sub-operating system.

7. The computer system according to claim 3, wherein the release notification function is executed based on a software interruption generated in response to a release by the exclusive control function of the resource.

8. The computer system according to claim 4,  
wherein the release notification function is  
executed based on a software interruption generated  
in response to a release by the exclusive control  
5 function of the resource.

9. The computer system according to claim 4,  
wherein one of the sub-operating system program and  
the main operating system program provides a  
10 mapping table generating function generating a  
resource mapping table showing correspondence  
between the virtual resources and the resources,  
and

the release notification function identifies  
15 the virtual resource to be released based on the  
resource mapping table.

10. The computer system according to claim 5,  
wherein one of the sub-operating system program and  
20 the main operating system program provides a  
mapping table generating function generating a  
resource mapping table showing correspondence  
between the virtual resources and the resources,  
and

25 the release notification function identifies  
the virtual resource to be released based on the  
resource mapping table.

11. The computer system according to claim 6,  
30 wherein one of the sub-operating system program and

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the main operating system program provides a mapping table generating function generating a resource mapping table showing correspondence between the virtual resources and the resources,  
5 and

the release notification function identifies the virtual resource to be released based on the resource mapping table.

10 12. The computer system according to claim 7, wherein one of the sub-operating system program and the main operating system program provides a mapping table generating function generating a resource mapping table showing correspondence  
15 between the virtual resources and the resources, and

the release notification function identifies the virtual resource to be released based on the resource mapping table.

20 13. The computer system according to claim 8, wherein one of the sub-operating system program and the main operating system program provides a mapping table generating function generating a  
25 resource mapping table showing correspondence between the virtual resources and the resources, and

the release notification function identifies the virtual resource to be released based on the  
30 resource mapping table.

14. A computer readable recording medium storing programs causing a computer to provide:

5 a main task executing function generating a plurality of main tasks and causing a central processing unit to sequentially execute the main tasks;

10 an exclusive control function effecting exclusive control on the use of resources by allocating the resources to the main tasks in the order of requests when there is a request for acquisition of the resource;

15 a sub-task executing function generating a plurality of sub-tasks based on application programs and sequentially executing sub-tasks other than the sub-task requesting the resource; and

20 a resource acquisition management function checking, when there is a request for acquisition of the resource from the sub-task, whether the requested resource is released by the exclusive control function, and, when it is determined that the resource is released, outputting a request for acquisition of the resource to the exclusive control function.

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